Road & Bridge Design Publications

Monthly Update – February 2021

Revisions for the month of **February** are listed and displayed below and will be included in projects submitted for the **June** letting. The special detail index from **October** will remain in effect. E-mail any questions on these revisions to MDOT-Bridge-Design-Standards@michigan.gov.

Bridge Design Manual

Chapter 2 Table of Contents, 2.03.07: New section dealing with the Authority for Bridge Closures. Full guidance can be found in the MDOT Construction Manual, Division 7 – Structures.

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Chapter 12 Table of Contents, 12.04.09: New Section for Metal Mesh Panels.

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Updates to the MDOT Cell Library, Sample Plans, and other automated tools may be required in tandem with some of this month's updates. Until such updates can be made, it is the designer's/detailer's responsibility to manually incorporate any necessary revisions to notes and plan details to reflect these revisions.

CHAPTER 2 - STEPS IN PRODUCING PLANS INDEX (continued)

2.03.03

Preliminary Plans

Once the study is approved, preliminary plans and preliminary estimate of cost are prepared by the Design Unit for approval by the FHWA and other concerned agencies.

2.03.04

Final Plans

Work on final plans can begin after the FHWA has approved the preliminary plans and the project has been environmentally classified. The final plans consist of all the details necessary to build the structure, the quantities of the materials required for construction, and the specifications that must be included in the Bid Proposal.

2.03.05 (12-17-2018)

Changes During Plan Preparation

(9-1-88) Before requesting changes in programming, the Project Manager should contact all persons, sections, Regions/TSCs or support areas having an interest in the project in order to include as many changes as possible in a single request.

For bridge construction, rehabilitation, or preventative maintenance projects, a JobNet Change Request should be submitted to the Bridge System Manager for approval. Change Request may be submitted to request program revisions involving project costs, work revisions, work types, and scheduled dates. Program additions, deletions, project splits or consolidations (cost redistributions), and finance revisions must be requested and documented along with the Change Request submittal. All data and documentation supporting the requested change(s) should accompany any request submitted and can be attached in JobNet. A clear and concise justification (reason), which includes language indicating that the request was discussed and agreed with by the Region, must be submitted with all electronic Change Request submissions.
(11-19-99)

2.03.05 (continued)

Where it appears that a change in work scope may affect a project's environmental clearance, the Environmental Services Section should be notified as soon as possible. Notification should include copies of any correspondence, memos or forms that will help describe the project revisions. (8-6-92)

Project designs and plans should not be changed prior to receiving the approval of the Program Administration Division and the Change Request pertaining to the modifications.

2.03.06

Changes after Plan Completion

If policy or specification changes occur after the details have been completed, such changes must be discussed with the Design Supervising Engineer to determine if they will be retroactive. Addenda to a contract should be avoided where they do not significantly affect the bidding. Where they are required, an effort should be made to consolidate several items in one addendum with bridge and road unit leaders coordinating their submittals. The deadline for addenda is 10 days preceding the date of the letting. Projects not meeting the 10 day limit, but needing an addenda, should be discussed with Design Engineer-Specifications and Estimates. (11-19-99)

2.03.07 (2/22/2021)

Authority for Bridge Closures

The responsibility/authority to close bridges is shared by many individuals. After initial assessment, closure actions may be initiated by:

- The Engineer/Construction Administrator
- The Design Engineer of Record (EOR)
- The Contractor's Safety Supervisor, or Site Superintendent
- The Bridge Owner

Concerns or questions related to bridge closures should be directed to one of these individuals. Additional information can be found at MDOT's Construction Manual website, Division 7 – Structures.

MICHIGAN DESIGN MANUAL
BRIDGE DESIGN

CHAPTER 12

REHABILITATION PROJECTS

12.04 (continued)

12.04.08

Approaches (5-1-2000)

To eliminate approach pavement settlement, a concrete approach section will be used for all concrete overlays. For hot mix asphalt (HMA) deck overlays, a concrete approach is not necessary. (3-26-2012)

The details of the approach slab shall be as specified on Standard Plan R-45-Series except on existing structures where the grade will not be raised; the length of the approach slab shall match the existing approach slab joint.

The transverse limits of the approach section shall extend to the concrete curb and gutter.

12.04.09 (2-22-2021)

Metal Mesh Panels

Bridge deck deterioration and spalling concrete from the underside of bridge has led to the need to protect the roadways below bridges.

A. Considerations

Metal mesh panels should be considered for projects with full depth patching in spans over traffic, and projects with rigid (concrete) overlay projects, regardless of observed condition of deck underside. Panels should be added over the extents of all paved areas, including paved shoulders and sidewalks. For projects that require false decking, include quantities for false decking as usual. False decking will be removed upon completion of rehabilitation work, and metal mesh panels will be installed.

12.04.09 (continued)

B. Limitations and Use Guidance

1. Metal mesh panel length is limited to 6'-6". Larger sizes become too heavy and too awkward for the average personnel to install. Larger sizes have not been impact tested. Longer sizes can be accommodated but require the width of the panel to be reduced from 48" to 24". Also require design checks on tube sizes and revision to Special Provision.

2. Metal mesh panels are not applicable on curved girder structures or superstructures with flared beam spacing.

3. Other Considerations

   a. Variable depth steel girders would require a designed attachment.

   b. Steel beams with full depth diaphragm connections or stiffeners require a modification to the panel.

   c. Concrete T-Beams and spread box beams require a designed connection.

4. Fit and Installation Problems

   In general, metal mesh panels are installed by placing one end of the metal mesh panel near the top flange(web fillet) until the other end clears the opposite bottom flange. Then rested on the bottom flanges. Installation is similar on PCI Beams.

   a. Short beams need to be checked for feasibility of installation.

   b. Check bays for utilities that would interfere with installation.

   c. Check clearance between diaphragm and bottom flange.

Use wood false decking when metal mesh panels cannot be used on a project and circumstances warrant protection of roadways, shoulders, or sidewalks.